

New Patent Claims

1. Process for the dimensionally-true sintering of ceramic pre-shaped items, the firing material resting during the sintering on supporting materials, not coated with metal, or consisting of metal molten at the sinter temperature, which adapt independently to the shrinkage dimensions which occur during the firing process or allow a contact-free support of the pre-shaped items.
2. Process according to claim 1, the pre-shaped items being ceramic dental prostheses.
3. Process according to one of claims 1 or 2, the firing material resting on movable supporting materials which can be composed of any material which is inert vis-à-vis the firing process and does not result in adhesion to the firing material and does not contaminate the latter.
4. Process according to claim 3, the supporting materials being developed as vertically standing or horizontally lying hollow or solid rods and having a cross-section which allows a minimal contact surface with the firing material.
5. Process according to claim 3, the supporting materials having a tip which allows a minimal contact surface with the firing material, and being hollow or solid.
6. Process according to one of claims 1 or 2, the firing material resting on supporting material which

has the same physical properties as the firing material itself.

7. Process according to claim 6, supporting material and firing material being prepared from the same preform.
8. Process according to claim 7, the firing material being connected to a plane surface via supporting pins which are cut through after sintering.
9. Process according to claim 7, the firing material resting in the negative mould obtained from the preform through the milling process on a pourable fill material or on suitable supports and/or props.
10. ~~Process according to one of claims 1 or 2, the firing material resting on supporting material which has very different physical properties to the firing material itself, where a contamination or bonding of the firing material with the supporting material must not be possible.~~
11. Process according to claim 1 or 2, in which gas streams which keep the ceramic pre-shaped items floating during the sintering and are inert at the sinter temperature are used as contact-free supporting materials.
12. Process according to claim 1 or 2, in which a magnetic field which keeps the ceramic pre-shaped items floating during the sintering because of incorporated or attached magnetic constituents is used as contact-free supporting material.

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$$\begin{aligned} \text{For } (i,j) \in \{1,\dots,n\} \times \{1,\dots,n\} \text{ let } \{f_{i,j}^{(k)}\}_{k=1}^{\infty} \text{ be a sequence of functions } f_{i,j}^{(k)}: \mathbb{R}^n \rightarrow \mathbb{R} \text{ such that} \\ f_{i,j}^{(k)}(x) = \begin{cases} 1 & \text{if } x_i = x_j = k \\ 0 & \text{otherwise} \end{cases} \end{aligned} \quad (11)$$